

THE COMMONWEALTH OF MASSACHUSETTS

DEPARTMENT OF TELECOMMUNICATIONS & ENERGY

Direct Testimony

of

John J. Spanos

In the Matter of Depreciation

Filed by

Massachusetts-American Water Company

DTE

November 16, 2000

1) Q. PLEASE STATE YOUR NAME AND ADDRESS.

A. John J. Spanos. My business address is 207 Senate Avenue, Camp Hill, Pennsylvania.

2) Q. WITH WHAT FIRM ARE YOU ASSOCIATED?

A. I am associated with the firm of Gannett Fleming Valuation and Rate Consultants, Inc.

3) Q. HOW LONG HAVE YOU BEEN ASSOCIATED WITH GANNETT FLEMING VALUATION AND RATE CONSULTANTS, INC.?

A. I have been associated with the firm since college graduation in June 1986.

4) Q. WHAT IS YOUR POSITION IN THE FIRM?

A. I am Manager of Depreciation and Valuation Studies.

5) Q. WHAT IS YOUR EDUCATIONAL BACKGROUND?

Untitled

A. I have Bachelor of Science degrees in Industrial Management and Mathematics from Carnegie-Mellon University and a Master of Business Administration from York College.

6) Q. ARE YOU A MEMBER OF ANY PROFESSIONAL SOCIETIES?

A. Yes. I am a member of the Society of Depreciation Professionals and the American Gas Association/Edison Electric Institute Accounting Committee.

7) Q. HAVE YOU TAKEN THE CERTIFICATION EXAM FOR DEPRECIATION PROFESSIONALS?

A. Yes, I passed the certification exam of the Society of Depreciation Professionals sponsored by the Society in September 1997.

8) Q. WILL YOU OUTLINE YOUR EXPERIENCE IN THE FIELD OF DEPRECIATION?

A. In June 1986, I was employed by Gannett Fleming Valuation and Rate Consultants, Inc. as a Depreciation Analyst. During the period June 1986 to December 1995, I took part in the preparation of numerous depreciation and original cost studies for utility companies in various industries. Depreciation studies of telephone companies were performed for United Telephone of Pennsylvania, United Telephone of New Jersey and Anchorage Telephone Utility. My work in the railroad industry included depreciation studies for Union Pacific Railroad, Burlington Northern Railroad and Wisconsin Central Transportation Corporation.

Assignments in the electric industry included depreciation studies for Chugach Electric Association, The Cincinnati Gas and Electric Company, The Union Light, Heat & Power Company, Northwest Territories Power Corporation and the City of Calgary - Electric System. Pipeline industry assignments included studies for TransCanada Pipelines Limited, Trans Mountain Pipe Line Company Ltd., Interprovincial Pipe Line Inc., Nova Gas Transmission Limited and Lakehead Pipeline Company.

My work for the gas industry included depreciation studies for Columbia Gas of Pennsylvania, Columbia Gas of Maryland, The Peoples Natural Gas Company, T. W. Phillips Gas & Oil Company, The Cincinnati Gas and Electric Company, The Union Light, Heat & Power Company, Lawrenceburg Gas Company and Penn Fuel Gas, Inc.

Assignments in the water industry included depreciation studies for Indiana-American Water Company, Consumers Pennsylvania Water Company and The York Water Company; and depreciation and original cost studies for Philadelphia Suburban Water Company and Pennsylvania-American Water Company.

My participation in each of the above studies included assembly and analysis of historical and simulated data, field reviews, the development of preliminary estimates of service life and net salvage, calculations of annual depreciation, and the preparation of reports for submission to state Public Utility Commissions or federal regulatory agencies. I performed these studies under the general direction of William M. Stout, P.E.

In January 1996, I was assigned to the position of Supervisor of Depreciation Studies and in July 1999, I was promoted to my current position of Manager,

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Depreciation and Valuation Studies, for Gannett Fleming Valuation and Rate Consultants, Inc. I am responsible for all depreciation, valuation and original cost studies, including the preparation of final exhibits and responses to data requests for submission to the appropriate regulatory body.

Since January 1996, I have conducted depreciation studies similar to those previously listed including assignments for Hampton Water Works Company, Omaha Public Power District, Enbridge Pipe Line Company, Inc., Columbia Gas of Virginia, Inc., Virginia Natural Gas Company, National Fuel Gas Distribution Corporation - New York and Pennsylvania Divisions, The City of Bethlehem - Bureau of Water, The City of Coatesville Authority, The City of Lancaster - Bureau of Water and B. C. Gas Utility, Ltd. My additional duties include determining final life and salvage estimates, conducting field reviews and presenting recommended depreciation rates to management for their consideration.

9) Q. WHAT IS THE EXTENT OF YOUR FORMAL INSTRUCTION WITH RESPECT TO UTILITY PLANT DEPRECIATION?

A. I have completed the "Techniques of Life Analysis", "Techniques of Salvage and Depreciation Analysis", "Forecasting Life and Salvage", "Modeling and Life Analysis Using Simulation" and "Managing a Depreciation Study" programs conducted by Depreciation Programs, Inc. Also, I have completed the "Introduction to Public Utility Accounting" program conducted by the American Gas Association.

10) Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS PROCEEDING?

A. My testimony is in support of the depreciation study conducted under my direction and supervision for Massachusetts-American Water Company.

11) Q. HAVE YOU PREVIOUSLY TESTIFIED ON THIS SUBJECT.

A. Yes. I have testified before the Pennsylvania Public Utility Commission on the subject of depreciation.

12) Q. PLEASE DESCRIBE WHAT YOU MEAN BY THE TERM "DEPRECIATION".

A. "Depreciation" refers to the loss in service value not restored by current maintenance, incurred in connection with the consumption or prospective retirement of utility plant in the course of service from causes which can be reasonably anticipated or contemplated, against which the Company is not protected by insurance. Among the causes to be given consideration are wear and tear, decay, action of the elements, inadequacy, obsolescence, changes in the art, changes in demand and the requirements of public authorities.

In the study that I performed and that is the basis for my testimony, I used the

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straight line remaining life method of depreciation, with the average service life procedure. The annual depreciation is based on a system of depreciation accounting which aims to distribute the unrecovered cost of fixed capital assets over the estimated remaining useful life of the unit, or group of assets, in a systematic and rational manner.

For General Plant Accounts 391, 393, 394, 395, 396, 397, 398 and 399, I used the straight line remaining life method of amortization. The annual amortization is based on amortization accounting which distributes the unrecovered cost of fixed capital assets over the remaining amortization period selected for each account and vintage.

13) Q. HAVE YOU PREPARED A REPORT PRESENTING THE RESULTS OF YOUR STUDY?

A. Yes. The report titled, "Depreciation Study - Calculated Annual Depreciation Accrual Rates Applicable to Utility Plant as of December 31, 1999," sets forth the results of my study.

14) Q. HOW DID YOU DETERMINE THE RECOMMENDED ANNUAL ACCRUAL RATES?

A. The determination of annual depreciation accrual rates consists of two phases. In the first phase, service life and net salvage characteristics are estimated for each depreciable group, that is, each plant account or subaccount identified as having similar characteristics. In the second phase, the composite remaining lives and annual depreciation accrual rates are calculated based on the service life and net salvage estimates determined in the first phase.

15) Q. PLEASE DESCRIBE THE FIRST PHASE OF THE STUDY, THAT IS, THE MANNER IN WHICH YOU ESTIMATED THE SERVICE LIFE AND NET SALVAGE CHARACTERISTICS FOR EACH DEPRECIABLE GROUP.

A. The service life and net salvage study consisted of compiling historical data from records related to the Company's plant; analyzing these data to obtain historical trends of survivor characteristics; obtaining supplementary information from management and operating personnel concerning practices and plans as they relate to plant operations; and interpreting the above data and the estimates used by other water utilities to form judgments of average service life and net salvage characteristics.

16) Q. WHAT HISTORICAL DATA DID YOU ANALYZE FOR THE PURPOSE OF ESTIMATING SERVICE LIFE CHARACTERISTICS?

A. The data consisted of the entries made by the Company to record plant transactions during the period 1950 through 1999. The transactions included additions, retirements, transfers and the related balances. I classified the data by depreciable group, type of transaction, the year in which the transaction took place, and the year in which the plant was installed.

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17) Q. WHAT METHOD DID YOU USE TO ANALYZE THIS SERVICE LIFE DATA?

A. I used the retirement rate method. That method is the most appropriate when aged retirement data are available, because it develops the average rates of retirement actually experienced during the period of study. Other methods of life analysis infer the rates of retirement based on a selected type survivor curve.

18) Q. PLEASE DESCRIBE THE RESULTS OF YOUR USE OF THE RETIREMENT RATE METHOD.

A. Each retirement rate analysis resulted in a life table which, when plotted, formed an original survivor curve. Each original survivor curve as plotted from the life table represents the average survivor pattern experienced by the several vintage groups during the experience band studied. Inasmuch as this survivor pattern does not necessarily describe the life characteristics of the property group, interpretation of the original curves is required in order to use them as valid considerations in service life estimation. Iowa type survivor curves were used in these interpretations.

19) Q. PLEASE EXPLAIN BRIEFLY WHAT AN "IOWA-TYPE SURVIVOR CURVE" IS AND HOW YOU USE IT IN ESTIMATING SERVICE LIFE CHARACTERISTICS FOR EACH DEPRECIABLE GROUP.

A. The range of survivor characteristics usually experienced by utility and industrial properties is encompassed by a system of generalized survivor curves known as the Iowa type curves. The Iowa curves were developed at the Iowa State College Engineering Experiment Station through an extensive process of observation and classification of the ages at which industrial property had been retired.

Iowa type curves are used to smooth and extrapolate original survivor curves determined by the retirement rate method. The Iowa curves and truncated Iowa curves were used in this study to describe the forecasted rates of retirement based on the observed rates of retirement and the outlook for future retirements.

The estimated survivor curve designations for each depreciable group indicate the average service life, the family within the Iowa system and the relative height of the mode. For example, the Iowa 100-R3 indicates an average service life of one-hundred years; a right-moded, or R, type curve (the mode occurs after average life for right-moded curves); and a moderate height, 3, for the mode (possible modes for R type curves range from 1 to 5).

20) Q. DID YOU PHYSICALLY OBSERVE MASSACHUSETTS-AMERICAN'S PLANT AND EQUIPMENT IN THE FIELD?

A. Yes. In order to perform the depreciation study requested by Massachusetts-American and become familiar with its operations, I conducted a field review of property on October 16 through 18, 2000, to observe representative portions of plant. A general understanding of the function of the plant and information with respect to the reasons for past retirements and the expected future causes of retirements was obtained during this trip and during other discussions with management. This knowledge and information was incorporated in the

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interpretation and extrapolation of the statistical analyses.

21) Q. PLEASE DESCRIBE THE MANNER IN WHICH YOU ESTIMATED NET SALVAGE PERCENTS.

A. The judgments of net salvage incorporated and were in consideration of estimates made for other water companies.

22) Q. PLEASE DESCRIBE THE SECOND PHASE OF THE PROCESS THAT YOU USED, THAT IS, THE CALCULATION OF COMPOSITE REMAINING LIVES AND ANNUAL DEPRECIATION ACCRUAL RATES.

A. After I estimated the service life and net salvage characteristics for each depreciable group, I calculated annual depreciation accrual rates for each group in accordance with the straight line remaining method, using remaining lives consistent with the average service life procedure.

23) Q. PLEASE DESCRIBE BRIEFLY THE STRAIGHT LINE REMAINING LIFE METHOD OF DEPRECIATION THAT YOU USED FOR DEPRECIABLE PROPERTY.

A. The straight line remaining life method of depreciation allocates the original cost less accumulated depreciation less future net salvage in equal amounts to each year of remaining service life.

24) Q. PLEASE DESCRIBE BRIEFLY THE AVERAGE SERVICE LIFE PROCEDURE THAT YOU USED IN CONJUNCTION WITH THE STRAIGHT LINE REMAINING LIFE METHOD.

A. In the average service life procedure, the remaining life annual accrual for each vintage is determined by dividing future book accruals (original cost less book reserve) by the composite remaining life of the vintage. The average remaining life is a directly weighted average derived from the estimated survivor curve.

25) Q. PLEASE DESCRIBE BRIEFLY THE AMORTIZATION OF CERTAIN GENERAL PLANT ACCOUNTS.

A. General Plant Accounts 391, 393, 394, 395, 396, 397, 398 and 399 include a very large number of units, but represent four percent of depreciable plant. Depreciation accounting is difficult for these assets, inasmuch as periodic inventories are required to properly reflect plant in service. In amortization accounting, units of property are capitalized in the same manner as they are in depreciation accounting. However, retirements are recorded when a vintage is fully amortized rather than as the units are removed from service. That is, there is no dispersion of retirement. All units are retired when the age of the vintage reaches the amortization period.

26) Q. PLEASE OUTLINE THE CONTENTS OF YOUR REPORT.

A. My report is presented in two parts. Part I, Methods Used in the study includes descriptions of the basis of the study, the estimation of survivor curves and net salvage and the calculation of annual and accrued depreciation.

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Part II, Results of Study presents a description of the results, summaries of the depreciation calculations, graphs and tables which relate to the service life study, and the detailed depreciation calculations.

The table on page II-4 presents the estimated survivor curve, the net salvage percent, the original cost as of December 31, 1999, the book reserve and the calculated annual depreciation accrual and rate for each account or subaccount. The section beginning on page II-9 presents the results of the retirement rate analyses prepared as the historical bases for the service life estimates. The section beginning on page II-21 presents the depreciation calculations related to surviving original cost as of December 31, 1999.

27) Q. PLEASE USE AN EXAMPLE TO ILLUSTRATE THE MANNER IN WHICH THE STUDY IS PRESENTED IN THE REPORT.

A. I will use Account 343, Mains and Accessories, as my example, inasmuch as it is the largest depreciable group and represents 52 percent of depreciable plant.

The retirement rate method was used to analyze the survivor characteristics of this group. The life table for the 1950-1999 experience band is presented on pages II-11 through II-13 of the report. The life table, or original survivor curve, is plotted along with the estimated smooth survivor curve, the 100-R3, on page II-10.

The calculation of the annual depreciation related to the original cost at December 31, 1999, of utility plant is presented on pages II-48 through II-50. The calculation is based on the 100-R3 survivor curve, the attained age, and the allocated book reserve. The tabulation sets forth the installation year, the original cost, calculated accrued depreciation, allocated book reserve, future accruals, remaining life and annual accrual. The totals are brought forward to the table on page II-4.

28) Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY.

A. Yes, it does.